WHAT IS CLAIMED IS:

1. A full-type rolling bearing formed of an outer ring, an inner ring and rollers that are made of steel, wherein

at least one of said outer ring, inner ring and rollers has a carbonitrided layer in its surface layer, and the austenite crystal grain size number of the surface layer is greater than 10.

2. The full-type rolling bearing according to claim 1, wherein

at least one of said outer ring, inner ring and rollers is carbonitrided at a carbonitriding temperature equal to or higher than the A1 transformation temperature, cooled to a temperature lower than the A1 transformation temperature and then heated to a quenching temperature lower than said carbonitriding temperature and thereby quenched.

3. The full-type rolling bearing according to claim 2, wherein

said quenching temperature is in a temperature range at which carbide and/or nitride and an austenite phase coexist in the carbonitrided surface layer of the steel.

4. The full-type rolling bearing according to claim 2, wherein

said quenching temperature is 790°C - 830°C.

5. The full-type rolling bearing according to claim 2, wherein

at least one of said outer ring, inner ring and rollers is cold-worked before being carbonitrided.

6. The full-type rolling bearing according to claim 1, wherein

in at least one of said outer ring, inner ring and rollers, a compression residual stress of at least 500 MPa is generated.

7. A roller cam follower of an engine comprising:

an outer ring being in rolling contact with a cam shaft of the engine;

a roller shaft located inside said outer ring and fixed to a cam follower body; and

bearing elements placed between said outer ring and said roller shaft, wherein

at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer, and austenite crystal grains in at least a surface layer are made fine to have a grain size number greater than 10.

8. A roller cam follower of an engine comprising:

an outer ring being in rolling contact with a cam shaft of the engine;

a roller shaft located inside said outer ring and fixed to a cam follower body; and

bearing elements placed between said outer ring and said roller shaft, wherein

at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer and has a fracture stress of at least 2650 MPa.

9. A roller cam follower of an engine comprising:

an outer ring being in rolling contact with a cam shaft of the engine;

a roller shaft located inside said outer ring and fixed to a cam follower body; and

bearing elements placed between said outer ring and said roller shaft, wherein

at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer and has a hydrogen content of at most 0.5 ppm.

10. The roller cam follower of an engine according to claim 7, wherein

said cam follower body is mounted on one end of a rocker arm, said rocker arm is pivotably attached to a rotational shaft located between said one end and the other end, one end of an open/close valve of said engine abuts on said other end, said cam follower body on said one end has a bifurcated roller supporting portion, and said roller shaft is fixed to said

bifurcated roller supporting portion.

11. The roller cam follower of an engine according to claim 8, wherein

said cam follower body is mounted on one end of a rocker arm, said rocker arm is pivotably attached to a rotational shaft located between said one end and the other end, one end of an open/close valve of said engine abuts on said other end, said cam follower body on said one end has a bifurcated roller supporting portion, and said roller shaft is fixed to said bifurcated roller supporting portion.

12. The roller cam follower of an engine according to claim 9, wherein

said cam follower body is mounted on one end of a rocker arm, said rocker arm is pivotably attached to a rotational shaft located between said one end and the other end, one end of an open/close valve of said engine abuts on said other end, said cam follower body on said one end has a bifurcated roller supporting portion, and said roller shaft is fixed to said bifurcated roller supporting portion.

13. The roller cam follower of an engine according to claim 7, wherein

said cam follower body is mounted between one end and the other end of a rocker arm, said roller shaft is fixed in a roller hole extending between two sidewalls of the rocker arm, an end of an open/close valve of said engine abuts on said one end of said rocker arm, and a pivot abuts on said other end.

14. The roller cam follower of an engine according to claim 8, wherein

said cam follower body is mounted between one end and the other end of a rocker arm, said roller shaft is fixed in a roller hole extending between two sidewalls of the rocker arm, an end of an open/close valve of

said engine abuts on said one end of said rocker arm, and a pivot abuts on said other end.

15. The roller cam follower of an engine according to claim 9, wherein

said cam follower body is mounted between one end and the other end of a rocker arm, said roller shaft is fixed in a roller hole extending between two sidewalls of the rocker arm, an end of an open/close valve of said engine abuts on said one end of said rocker arm, and a pivot abuts on said other end.

16. The roller cam follower of an engine according to claim 7, wherein

a rocker arm is pivotably attached to a rotational shaft located between one end and the other end of said rocker arm, an end of an open/close valve of said engine abuts on said one end, said other end abuts on one end of an interlocking rod transmitting a stress from said cam, said cam follower body is mounted on the other end of said interlocking rod, said one end and said other end of said interlocking rod being located respectively on said rocker arm and said cam, and said roller shaft is attached to said cam follower body and abuts on said cam.

17. The roller cam follower of an engine according to claim 8, wherein

a rocker arm is pivotably attached to a rotational shaft located between one end and the other end of said rocker arm, an end of an open/close valve of said engine abuts on said one end, said other end abuts on one end of an interlocking rod transmitting a stress from said cam, said cam follower body is mounted on the other end of said interlocking rod, said one end and said other end of said interlocking rod being located respectively on said rocker arm and said cam, and said roller shaft is attached to said cam follower body and abuts on said cam.

18. The roller cam follower of an engine according to claim 9, wherein

a rocker arm is pivotably attached to a rotational shaft located between one end and the other end of said rocker arm, an end of an open/close valve of said engine abuts on said one end, said other end abuts on one end of an interlocking rod transmitting a stress from said cam, said cam follower body is mounted on the other end of said interlocking rod, said one end and said other end of said interlocking rod being located respectively on said rocker arm and said cam, and said roller shaft is attached to said cam follower body and abuts on said cam.

19. The roller cam follower of an engine according to claim 7, wherein

said bearing elements are full type needle bearings.

20. The roller cam follower of an engine according to claim 8, wherein

said bearing elements are full type needle bearings.

21. The roller cam follower of an engine according to claim 9, wherein

said bearing elements are full type needle bearings.

22. The roller cam follower of an engine according to claim 7, wherein

said roller shaft has its end with a hardness lower than that of its central portion.

23. The roller cam follower of an engine according to claim 8, wherein

said roller shaft has its end with a hardness lower than that of its central portion.

24. The roller cam follower of an engine according to claim 9, wherein

said roller shaft has its end with a hardness lower than that of its central portion.

25. The roller cam follower of an engine according to claim 7, wherein

said roller shaft has its end which is caulked.

26. The roller cam follower of an engine according to claim 8, wherein

said roller shaft has its end which is caulked.

27. The roller cam follower of an engine according to claim 9, wherein

said roller shaft has its end which is caulked.

28. The roller cam follower of an engine according to claim 7, wherein

said cam follower is entirely press-formed.

29. The roller cam follower of an engine according to claim 8, wherein

said cam follower is entirely press-formed.

30. The roller cam follower of an engine according to claim 9, wherein

said cam follower is entirely press-formed.